Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A data processing circuit contained on an integrated circuit, comprising:

a network (12) contained on the integrated circuit, that is operable in successive time-slots;

a plurality of data processing units (10) contained on the integrated circuit, interconnected by the network (12), and arranged to send streams of messages concurrently through the network (12), each stream comprising messages that occupy shareable resources (20) in the network (12) in a periodically repeating selection of successive time-slots, a period of repetition (P) being the same for all the streams;

node circuits (22) in the network (12), the node circuits (22) being arranged to forward the messages along multi-node paths through the network (12), each particular stream being assigned a respective stream specific path along which the node circuits (22) forward all messages of the particular stream, the node circuits (22) being arranged to decide whether to forward or discard each message dependent on a measure of seniority of the message in its particular stream, each particular node circuit (22) being arranged to prevent forwarding of a more junior message in the particular stream for which insufficient resources (20) are left because of forwarding of a more senior message from another stream from the particular node circuit (22)

<u>wherein once an initial message has been forwarded from a node circuit, it is ensured that all subsequent messages will be forwarded from that node circuit</u>.

2. (Original) A data processing circuit according to Claim 1, wherein at least one of the node circuits is arranged to send back a confirmation of successful forwarding of a message from an initial part of a particular stream up to said at least one of the node circuits, at least a

further one of the node circuits (22) being arranged to forward a subsequent message from the particular stream only after timely reception of the confirmation.

3. (Original) A data processing circuit according to Claim 1, wherein

at least one of the node circuits (22) is arranged to generate a confirmation of successful forwarding of a message from an initial part of a particular stream and to send the conformation back through the network (12), and wherein

a further node circuit back along the path from the at least one of the node circuits (22) is arranged to detect, upon receiving a further message from the stream, whether the further message and the confirmation cross in the further node circuit (22) in a crossing time-slot, and to forward the further message only upon detection of said crossing, the further circuit selecting the crossing time-slot according to a predetermined scheme,

the at least one of the node circuits (22) being arranged to send back the confirmation in a selected return time-slot, the return time-slot being selected in predetermined way so that the confirmation, if not lost, will cross the further message in the crossing time slot determined according to the predetermined scheme.

4. (Original) A data processing circuit according to Claim 3, wherein the node circuits (22) are arranged to send back confirmations of successful forwarding in a plurality of selected return time slots which are separated by at most half said period (P).

5. (Original) A data processing circuit according to Claim 4, wherein the node circuits (22) are arranged to decide whether to forward or discard each particular message on the basis of seniority dependent only on whether the particular message is an initial message of its particular stream or not.

6. (Original) A data processing circuit according to Claim 3, wherein the node circuits (22) are arranged to send back one or more confirmations when successfully forwarding messages in a plurality of selected return time slots which are selected so that the confirmations reach the source data processing unit (10a) in arrival time-slots that repeat with said period (P).

7. (Original) A data processing circuit according to Claim 6, wherein a destination data processing unit (10b) at an end of the path is arranged to start transmitting a return stream of return messages in selected return time slots, selected so that the return messages reach the source data processing unit (10a) in arrival time-slots that repeat with said period (P), following the confirmations starting from one period after a last confirmation, the one or more confirmations forming one or more precursor messages of the return stream, the node circuits (22) treating the return messages with higher seniority than at least an initial one of the one or more precursor messages.

8. (Original) A data processing circuit according to Claim 3, wherein the node circuits (22) are arranged to send back confirmations when successfully forwarding a message from the particular stream in predetermined time slots, which repeat with half said period (P).

9. (Original) A data processing circuit according to Claim 8, wherein a destination data processing unit (10b) at an end of the path is arranged to start transmitting a return stream of return messages in selected return time slots, selected dependent on the time slots of arrival of messages from an original stream at the destination data processing unit, the return time slots of transmitting the messages of the return stream being selected so that a sum (t_a+t_r) of time-slot sequence numbers t_r of the time slots of transmission of the return stream and time-slot sequence numbers t_a of arrival of the messages of the original stream equal a predetermined number "s" modulo a length of the period, the confirmations being transmitted in time slots so that twice the sequence number of these slots equals 2*(s+1), twice the predetermined number plus one modulo the length of the period.

10. (Original) A data processing circuit according to Claim 3, wherein the source data processing unit (10a) is arranged to discontinue transmission of messages from the stream if the confirmation is not received by the source data processing unit (10a) in a confirmation time slot that is determined by the predetermined return time-slot.

11. (Currently Amended) A method of processing data in a data processing circuit contained on an integrated circuit, that contains a plurality of data processing units (10) contained on the integrated circuit,interconnected by a network (12) of node circuits (22) contained on the integrated circuit, the node circuits (22) using successive time slots to forward messages along transmission paths between pairs of the data processing units (10), using resources (20) that the network (12) allows to be shared between different paths on a time slot multiplexing basis, the method comprising:

starting streams of messages, each from a respective source data processing unit (10a) to a respective destination data processing unit (10b), each stream comprising messages that occupy the resources in a periodically repeating selection of time-slots, the period of repetition being the same for all the streams;

forwarding all the messages of the particular stream through the network (12) along the node circuits (22) in a stream specific path assigned to the particular stream, the node circuits (22) deciding to forward or discard each message dependent on a measure of seniority of the message in its particular stream, each particular node circuit (22) preventing forwarding of a more junior message for which insufficient resources are left because of forwarding of a more senior message from the particular node circuit

wherein once an initial message has been forwarded from a node circuit, it is ensured that all subsequent messages will be forwarded from that node circuit.

12. (Original) A method according to Claim 11, comprising:

generating a confirmation, in at least one of the node circuits (22), to confirm successful forwarding of a message from an initial part of a particular stream from the at least one of the node circuits (22) to the source data processing unit of the particular stream,

transmitting the confirmation from the at least one of the node circuits (22) back along the path to the source data processing unit (10a) in a selected return time-slot,

selecting the return time-slot so that, if not lost, the confirmation will cross a further message from the particular stream in a crossing time slot that can be predicted according to a predetermined scheme;

detecting whether the further message of the stream crosses with the confirmation in a further node circuit (22) in the crossing time-slot predicted according to the predetermined scheme;

forwarding the further message from the further node circuit (22) only if such a crossing is detected.

13. (Original) A method according to Claim 12, comprising:

sending back one or more confirmations in selected return time slots from node circuits which are selected so that, in the case of more than one confirmation, the confirmations reach the source data processing unit (10a) in arrival time-slots that repeat with said period (P);

transmitting a return stream of return messages back along the path through the network (12) from a destination data processing unit (10b) to the source data processing unit (10a), in response to reception of an initial message of the particular stream destination data processing unit (10b), in time slots selected so that the return messages occupy the resources in a further periodically repeating selection of time-slots, with said period (P) of repetition, starting from one period (P) after a last one of the one or more confirmations.